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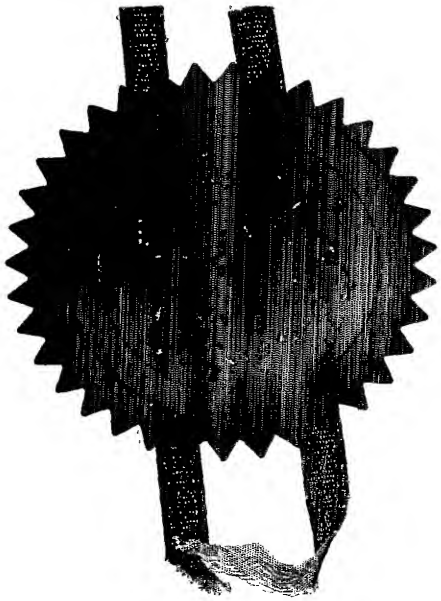

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4. Title of the invention

NETWORK TERMINATION APPARATUS

5. Name of your agent *(if you have one)*

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NETWORK TERMINATION APPARATUS

FIELD OF INVENTION

The present invention relates to a method and apparatus for the provision of telecommunications connections to customer premises, in particular the termination of a cable of the external telecommunications network at the premises.

BACKGROUND OF THE INVENTION

Public Switched Telecommunications Networks (PSTNs) currently comprise an access network of cables routed through various exchanges which ultimately terminate on the distribution side in premises of commercial, industrial, consumer or other customers. These cables are typically terminated on Network Termination Points (NTPs) located within the customer's premises. Historically these cables have been twisted copper pairs, but increasingly there is a move to use optical fibre to provide fibre-to-the premises.

Currently, it is the practice to wire up customer premises (particularly single family dwellings or similar buildings such as houses or conversions or maisonettes, as opposed to tower block accommodation) for telecommunications only after construction. The process typically involves the following: a cable from the access network terminating at a customer's premises is led from a primary cross connection point located in a street cabinet, either by overhead or underground feed, to the wall of the premises.

A hole is then drilled through the fabric of the wall to allow the arriving cable access into the premises. The cable passes through to the interior of the premises, and is terminated at an NTP (such as, in the UK, an NTE5 master linebox). As its name suggests, the NTP typically marks the legal extent of the authority and responsibility of the external network service provider (such as British Telecommunications plc in the UK). Such termination boxes cover the raw access hole on the interior wall, are either surface- or flush-mounted, and include a socket on the faceplate for compatible connector plugs such as a RJ45 connector for telephones. The surface-mount boxes tend to abut about 36mm from the wall and are generally bulky and aesthetically

displeasing. They are also susceptible to accidental or malicious damage as they can be knocked against and dislodged. The flush-mounted boxes need to be used with a compatible back box. However these are more time-consuming to install than surface-mounted boxes, as the wall surface will need to be broken to created a suitable cavity to accept the back box.

The present methods of installing a termination point therefore suffer from the need to destroy the building fabric of the premises by creating access for the entering external cable. NTPs are either unattractively bulky and thus unsuitable particularly in residential settings, or else are installed by further modification to the building infrastructure and at considerable cost, expertise and inconvenience.

Another problem arising from current installation methods which locate the NTPs on the interior walls of premises, is that the external network service provider need to make arrangements with the parties responsible for the premises to install the connection, or to carry out other work related to the termination point. Considerable problems arise caused by the busy and conflicting schedules of the external service provider and the householder. Service providers will carry out their work mainly during office hours, the time during which working customers will not be at home. If the schedules fail to match - which may occur in spite of appointments made for specific timeslots due to factors outside the service provider's control - much time is lost and the financial cost of re-scheduling and re-making the visit is considerable. Moreover, valuable goodwill is also lost in the process, which is of particular significance in an open telecommunications market.

Yet another issue concerns the expectation that in the context of the typical consumer premises, the distribution copper wires currently deployed will eventually be upgraded to optical fibre. However, as the properties of optical cable and copper wire are quite different, network termination equipment for fibre will have to be treated differently, particularly in respect of the management of the fibre cable itself. An NTE5 box will not be suitable for use with optical fibre, and will have to be removed and replaced with apparatus for optical fibre, meaning that further destruction of the customer premises walls will be required at the time of upgrade.

The method and apparatus of the present invention provides an improvement and/or alternative to current methods and apparatus for the termination of external network cables on customer's premises which seek to mitigate or avoid at least some of the aforementioned drawbacks.

BRIEF DESCRIPTION OF THE DRAWINGS

Systems, methods and apparatus embodying the present invention will now be described by way of example only, with reference to the following drawings, wherein:

Figure 1 is a view of a cross section of the walls of a customer's premises, depicting the prior art method of providing telecommunications connections using the termination point of Figure 2;

Figure 2 shows a prior art network termination point, the NTE5 linebox;

Figure 3 is an exploded view showing the components making up a device of an embodiment of the invention;

Figure 4 is an exploded view of the a splice-brick according to the invention showing its components when the device is used in a cavity wall with the duct entering from the cavity below;

Figure 5A is a view of the device of Figure 3 including a fibre storage tray and a fibre management adapter;

Figure 5B is a view of the device including a tray for a printed circuit board or other electronics module;

Figure 6 shows the device when installed, with overhead and underground tube/cable inputs;

Figure 7A is a view of the device showing cable/tube routing within the splice brick in an underground feed configuration;

Figure 7B is a view of the device showing cable/tube routing within the splice brick in an overhead feed configuration;

Figure 8 shows the device when installed, with a cavity duct feed;

Figure 9 shows a view of the installed device, from within the wall cavity;

Figure 10 is a view of a cross section of the walls of a customer's premises, depicting the method of providing telecommunications connections using the device of the present invention in an underground feed configuration; and

Figure 11 is a view of a cross section of the walls of a customer's premises, depicting the method of providing telecommunications connections using the device of the present invention in an underground cavity feed configuration.

DESCRIPTION OF PREFERRED EMBODIMENTS

As outlined above, the current method of providing telecommunications connections to customer's premises is to retrofit them to buildings. This is done by leading a cable or an optical fibre tube from the access network to the premises, either from above e.g. on telephone poles (in an overhead configuration), or through cable ducts buried in the ground (in an underground configuration). An access hole is then created by drilling through the wall - or walls, in the case of a cavity wall installation - of the premises. In the cavity wall installation depicted in Figure 1, W1 and W2 are the exterior and interior walls respectively. Exterior wall W1 has an outward face WF1 and interior wall W2 has an inward face WF2. The cable (1) leading from the external network passes through access hole(s) (2) created for this purpose. The cable (1) is then terminated at the network termination point, typically a Network Termination Point (NTP) or termination box (4) such as a NTE5. The termination box is located at, in or on the interior wall (W2) of the premises. This can be mounted on the surface of the interior wall as depicted in the figure, or it could be flush-mounted so that the extent of protrusion of the box from the wall is somewhat diminished.

Figure 2 shows the front and back views of a commonly-used NTP (4), the NTE5. On the front panel (6), access in the form of a socket (8) is provided for a compatible connector plug such as the RJ45 connector. On the back (10), the cable can arrive through one of the holes in the back box (which is surface or flush-mounted) and is terminated at the screw terminals.

As indicated above, the present method of providing telecommunications connection to customer premises by retrofitting is costly, wasteful and inconvenient. The resulting NTP protruding from the customer's interior wall is unattractive; the installation of a flush-mounted NTP requires further destruction to the interior wall and involves considerable cost, time and expertise. As the NTP is located on the interior wall (W2) of the customer's premises, the party responsible for the external network must co-ordinate with the party authorised to allow access to the interior of the premises; the

failure of either party to keep appointments results in much wasted time and money, and lost goodwill.

Furthermore, the current NTP apparatus and installation methods address only the deployment of copper wire pairs, so that when the time comes to upgrade the premises to an optical connection, the premises will have to undergo further costly and time-consuming work and damage. This is because the properties of optical fibre are substantially different from copper wire: for example optical fibre is highly bend sensitive. Bending about too tight a radius results in increased optical loss and can lead to fibre damage or even fracture. However, copper wire is not bend sensitive and copper wire pairs are routinely installed under conditions which would severely damage optical fibre.

Figure 3 shows an embodiment of the invention in an exploded form with its component parts. The device (5) comprises a splice brick (20), a fibre management adapter (30) and a front cover (40). This embodiment with the fibre management adapter would be used for installations fed externally by distribution cables arriving on the outward face (WF1) of the external wall (as opposed to a cavity feed, see below e.g. Figures 8 and 9).

When installed, the device forms part of the building fabric, as a "brick replacement". It is proportioned so that it can be installed into the wall, and so that once installed, the device preferably does not substantially project from the outward face (WF1) or inward face (WF2) of the wall.

Preferably, the device is installed while the building is being constructed. If the wall is made of house brick, the device could be installed by laying it in mortar as if it too, were a house brick. Doing so would realise a significant advantage of the invention, as installation during construction will obviate the cost and effort in later destroying the building fabric by retrofitting. If necessary however, the device could also be installed by retrofitting, to realise the other advantages afforded by the adoption of the invention.

The splice brick or receptacle (20) is the component that would be provided to the building trade for incorporation into the wall as the premises are built, according to the

preferred mode of installation described above. The unit is made of a material, such as steel or an engineering grade plastics material, sufficiently strong to serve as a "brick replacement" when installed. The material should preferably be insensitive to, or adequately protected from, the strong alkali which is present in most building mortars. In addition, if a plastics material is used it should not lose its desirable mechanical properties under the influence of the ultraviolet present in sunlight, which may mean either that an insensitive material is used or it is given suitable and durable protection from the ultraviolet radiation. Also, to improve the bonding of mortar to the splice brick, the surfaces of the brick which are to be mortar bonded are preferably finished with a mortar-adherent coating. This could, for example, be aggregate (e.g. sand or grit) glued or otherwise to the surface of the splice brick.

In the embodiment shown in Figure 3, the splice brick (20) includes a void substantially similar in volume to that of the relevant component making up the wall, e.g. a brick. The device includes receiving arms (22) to accept e.g. a splice tray (23) (discussed below in connection with Figure 6). Any other components for the termination, connection, etc. of the cable can be housed within the void as well. In particular, the device can be used for various cable types (twisted copper pairs, coaxial, optical fibre etc.), so use of the invention is flexible and capable of upgrades from e.g. copper pairs to optical fibre as it can cope with the properties of both equally well. The invention thus helps to future-proof customer premises in this aspect.

In the UK, standard building bricks are typically 215 mm long, 102.5 mm wide and either 50 or 65 mm high, for use with 10mm mortar joints. Other sizes are sometimes used in the UK and the standard sizes in other countries are likely to differ from those of the UK. Obviously, the precise dimensions of the splice bricks according to the invention can be set for the local standard brick sizes. Similarly, if the local building "block" is a stone or cement block of some other typical size, that size can be used as the basis for dimensioning the splice brick. However, splice bricks with dimensions of around 175 mm to 250 mm length, by 75 mm to 150 mm wide and 50 mm to 150 mm high are likely to be useful and practical, while not being so large as to give rise to structural issues with wall building. In general, excessively large splice bricks are to be avoided.

In order to encourage and facilitate the adoption of the invention by the building trade it is sensible to ensure that the splice brick of the invention can be laid just like any other brick or building block without the bricklayer having to adopt his or her working practices. This suggests that the splice brick should not be appreciably longer, wider or thicker than a standard brick, nor should it be much thinner. Of course, one might find a use for a "double length" or "double height" splice brick (but whose dimensions actually take account of the loss of one mortar joint). Easier to use in many cases would be a splice brick of half length, since many brick laying patters (bonds) make use of half bricks. However, it may not always be possible to fit in to such a half brick all the components and fibre desired. Moreover, bend management of fibre may be a problem (depending upon the fibre type) with such a half brick. The splice brick could also be somewhat narrower than a conventional brick, but there is little if any advantage in that and indeed the full width would also be useful for housing splices and electronics.

The device, when installed on the exterior wall (W1) of the premises, is positioned to communicate with a corresponding access hole through the interior wall (W1). In a cavity wall arrangement, this allows the cable (1) to pass through the device, through the cavity, and then through the hole in the interior wall into the premises, in a manner similar to that in the prior art as shown in Figure 1, and as exemplified in Figures 10 and 11 below.

While the access hole need not be perfectly aligned directly opposite the device, it should ideally be located at a place on the internal wall allowing the cable to be passed with relative ease through the device, the wall cavity if any, and through the interior wall via the access hole.

As with the splice brick itself, it is preferable that the access hole in the interior wall be provided during the construction of the building. This would avoid problems of having to subsequently find a suitable place to locate the access hole on the interior wall. For example, a pipe or other conduit suitable for the purpose could be laid in mortar at the same time as the splice brick is being installed on the exterior wall. This could ensure that the access hole on the interior wall is substantially in line with the device sitting on the exterior wall. Preferably, the pipe could be located so that it is laid at the intersection of two runs of mortar - e.g. where the vertical and horizontal lines meet at

the corner of a brick - as there is relatively more space at such a junction point, also any effect on the cosmetic appearance of the wall surface is minimised. Alternatives for the installation of the access hole in the interior wall can be envisaged: for example the pipe creating the access hole could extend directly from the internal cable duct of the device (24) in a unitary piece. This would create a channel passing through the cavity so that the cable (1) is accurately and easily passed into the interior of the premises.

Ideally, the pipe or conduit which passes through the inner wall of the cavity wall would be "blind" on its inner end (i.e. the end which faces the interior of the room or building) with either a blanking plug or a thin or frangible part which could readily be knocked off or out, or punctured to permit communication between the "room end" of the pipe and the interior of the splice brick. This would reduce the risk that the access pipe would become blocked during the construction of the building. Otherwise, particularly during plastering of the internal walls the access pipe could become so severely blocked as to be unusable.

While fitting the access hole and the device simultaneously has clear advantages, it would still be possible to retrofit the access hole by drilling or other means, especially if the approximate position of where the access hole should be located could be indicated on the interior wall or otherwise.

Prior art NTE boxes such as the NTE5 serve mainly a single purpose - to terminate the cable from the external network and to provide a socket for receiving a connector plug such as an RJ11. Because of the position in which it is installed, designers of such boxes seek to keep its size to a minimum to reduce its protrusion from the wall (in a surface mounting) or to ease its installation (in a flush mounting).

As against this, the device of the present invention in a preferred embodiment includes a relatively large void, i.e. substantially similar to the volume of the relevant building component, e.g. a house brick. In the preferred embodiment there will be room in the void not only for apparatus for the traditional NTE functions of cable termination and connection, but also for other functionalities such as fibre storage, passive optical devices, DSL filters and the like. By having the capacity to include other functionality in this manner, use of a device of the invention will reduce the amount of

telecommunications plant visible to a householder within the premises. It may also go some way in guarding against premature obsolescence of the installation, as newly developed devices and apparatus for methods and technologies perhaps yet to be developed, could be sited within the device of the invention.

The distribution cable/fibre tube from the external network could enter the splice brick (20) from the external cable duct in a number of ways, e.g.

- by underground feed through duct terminating at ground level against the outer face (WF1) of the exterior wall, then upwards over the wall to the device and entering via the front of the fibre management adapter (30)
- by overhead feed through duct terminating against the outer face (WF1) of the exterior wall, then downwards over the wall to the device and entering via the front of the fibre management adapter (30)
- in an installation with cavity walls, by underground feed and then upwards to the through the cavity towards the rear of the device in a cavity feed

In this description, references to "cable" will in the appropriate case, include blown fibre tube where the customer premises are intended to be initially installed with tube prior to installing optical fibre by blowing.

Cavity feeds are most likely to be used in "new-build" situations. An advantage of supplying cable to premises in this manner is that the cable is protected from the elements upon duct exit. In a cavity feed, the cable of the external network is fed into the splice brick via a duct entry (25). Preferably, a number of knockout holes are provided within the splice brick to allow selection of where the duct entry is positioned. This would allow the splice brick to sit in an optimal position to prevent or minimise any strain caused by the duct position. In a overhead or underground feed duct which terminates at ground level against the exterior wall, the duct entry would be positioned to keep the incoming cable as vertical as possible.

The figure shows flanges (26) and a back plate (28) that can be provided on the exterior of the splice brick to facilitate correct alignment and positioning of the splice brick as it is being installed, and to support and anchor it thereafter.

The embodiment shown in Figure 3 includes an optional fibre management adapter (30). This is used in an optical fibre setup, and where the optical tubes or fibres arrive via the exterior wall (as opposed to a cavity feed). A path (32) is provided to receive the optical tube or fibre, which is configured to guide the tube or fibre around corners (e.g. 34). This controls fibre bend and can help prevent excessive bending and the consequent drop in fibre performance. Preferably, knockout holes (e.g. 25) are provided in the fibre management adapter to accept tube or cable from a variety of entry positions.

The device shown in Figure 3 includes a front cover (40). The device of the invention is configured to be installed so that the splice brick can be accessed from the exterior of the premises. The cover protects the contents of the splice brick (20), which would otherwise be exposed to the elements. A weatherproof seal is preferably provided to seal the joint between the cover and the main body of the splice brick to prevent, for example, ingress of water. Some form of locking mechanism may also be provided, although it is likely that as installed no lock will be provided: a lock being installed later when a circuit is provisioned.

In a preferred embodiment, the colour, texture etc. of the exterior appearance of front cover is made to resemble the other components making up the exterior wall (common house bricks, breeze blocks, stone or cement blocks or the like). The presence of the device when installed will then affect appearance of the outward face (WF1) of the exterior wall only minimally.

Figure 4 is an exploded view of the component parts of the device when used in a cavity wall setup, where the cable duct enters the splice brick (20) from an underground feed. A gas block connector (21) (which serves to block the travel of any gas present in the system beyond this point when using blown fibre tubes) is included within the cavity of the splice brick.

Figure 5A depicts a splice brick (20) with the fibre management adapter (30) fitted thereto. Slotted into the receiving arms (22) is another optional item, a components tray (23). The tray is slidably mounted on receiving arms (22) and installed by pushing it to the back of the splice brick along the arms. In the figure, the tray has been pulled away from its closed position to better illustrate it. The tray can of course be installed

within the splice brick in other ways – for example on a pivot along a horizontal or vertical axis as well as being slidably mounted or a combination of such mounting techniques. In the present embodiment, the tray is a fibre storage tray to receive optical tube or fibre entering the device, with its own path to control and guide the optical fibre or tube bend. The tray could equally comprise or house passive optical devices or other components. There is in this embodiment, space above the components tray to further accommodate sealed electronics modules, such as an NTE, DSL filters, printed circuit boards or other components (27) in the form of subsequent trays or otherwise, as shown in Figure 5B.

Figure 6 shows the device set up in a configuration receiving an overheard and underground feed on the exterior wall, as installed at a customer's premises. (The drawing shows both feed directions mainly for purposes of illustration, as typically only one direction of feed is used for any installation.) The front cover (40) has been removed to show the contents of the splice brick. Here, the splice brick (20) with the fibre management adapter (30) fitted thereto includes a fibre storage tray (23). In a fibre installation, the fibre management adapter provides guidance and control over the bend of optical fibres entering the device, to guard against the fibre being bent too tightly.

The figure is a little inaccurate in that it shows features which in reality would be obscured by the presence of mortar between the courses of bricks. The external cable (1) leads over the outer face (WF1) of the wall and enters the device through a knockout hole (25). It is then guided along the paths (32, 34) of the fibre management adapter (20), the excess fibre stored on the fibre storage tray (23) (shown here in a closed position) before it is fed into the gas block connector (21).

Figures 7A and 7B show the route taken by optical tube or fibre within a device configured as shown in Figure 6. Both figures show a blown fibre tube installation with tube terminated on one side of the splice tray and tube terminated on the other side of the splice tray. The tube could lead to an NTE located within the device. The external cable is routed to the splice tray where it is spliced to the fibre from the inside of the premises, which may be connected to the NTE. Alternatively the external fibre may be spliced to a fibre tail leading from an NTE module located within the device of the invention.

Figure 7A shows an underground feed over the wall surface, while Figure 7B depicts a wall-surface overhead feed.

Figure 8 shows the device without its front cover, installed with a cavity duct feed arrangement, with a gas block connector (21). The external cable (1) is here shown to lead from an underground feed, to be fed into the gas block connector. The fibre management adapter (30) is absent from this configuration because it manages only incoming fibre arriving on the exterior wall surface.

Figure 9 depicts the exterior wall (W1) from within the cavity separating W1 and W2 in a cavity wall installation, showing the back view of an embodiment of the invention. The back plate (28) of the splice brick (20) as installed into the exterior wall (W1) is visible from this view, where the external cable (1) enters the splice brick from an underground feed within the wall cavity. This view also shows how the back plate helps to support and hold the device in place after installation. The internal cable duct (24) points away from the exterior wall towards the interior wall (W2, not depicted), so that the internal cable leads into the customer's premises through the interior wall, providing the means for telecommunications connection.

Figures 10A and 10B show cross sections of the exterior and interior walls of a customer's premises including the device of the invention (5) in a cavity wall installation. In both Figures 10A and 10B, the device is shown as being fed from an underground cable duct. The external cable (1) arrives to the foot of the exterior wall surface, and is routed upwards to and into the device.

After bend management (if the cable comprises tube/fibre) and termination (where this does not take place in or on the internal wall W2) within the device, the cable is routed through the cavity from the exterior wall to and in Figure 10A it is further routed through a bend management device (31) that, where applicable, controls the bend radius of the optical fibre cable. The bend management device in this figure is depicted in the form of a type of hollow plug positioned within the body of the wall. Use of the device will help reduce in the extent of protrusion on the inward face (WF2) of the cable entering the premises. It would be clear that alternative bend control means can be used in lieu of the plug embodiment shown in Figure 10A. For example, bend control of optical fibre bend can be applied on the surface of the inward wall - the

internal component (11) can include apparatus for this purpose. Alternatively in a copper installation, the component (11) could comprise a copper wire outlet.

Bend control on the inward wall is a desirable but not necessary feature of the invention. The cable could simply travel through access bore (2) to emerge in the interior of the premises. Figure 10B therefore depicts an installation without any bend control apparatus within the interior wall.

This depiction of an arrangement with an underground feed is similar to that for an overhead feed, save that in the latter case the cable (1) arrives at the surface of the exterior wall at a level above the device.

As noted above in connection with Figure 3, the device of the invention allows the inclusion of a significant amount of apparatus within the set-up without the accompanying problems associated with increased amounts of plant which is seen by users. With the use of the device, telecommunications clutter within the interior of the customer premises can be considerably reduced

Figures 11A and 11A are cross section of the exterior and interior walls of a customer's premises similar to Figures 10A and 10B respectively, but in a cavity feed installation. The external cable (1) is fed from an underground duct within the wall cavity, into the rear of the device (5) installed in the exterior wall (W1), where it is terminated. The internal cable is then routed through the interior wall (W2) to provide the premises with the telecommunications connection.

Similar to Figure 10A, a bend control device (31) in the form of a plug positioned within the wall fabric is seen to be employed in Figure 11A. Figure 11B shows a similar installation without any bend control apparatus within the wall so that the cable simply travels through the access hole (2). However simple bend control could be effected at the surface of the inward wall (WF2).

In a preferred embodiment, the termination of the external network takes place within the device of the invention sited within the exterior wall: this realises the full benefit of the space-saving aspect of the invention, as use of the device in this manner would mean that all that is required on the inward face (WF2) is an interface for the

customer's telecommunications equipment, e.g. a socket for a connector such as an RJ11 plug. Thus, unsightly and vulnerable clutter that would otherwise have to be accommodated on the inside of the premises is removed by the use of the device.

The above apparatus and method describes certain specific implementations of the inventive concept, which is not restricted to the termination and connection of telecommunications cables, but which can extend to any situation requiring cable entry into premises. In the most preferred embodiment there is no need to need to modify building fabric to install the device, and after the need for the service ends, the device need not be removed, but can be left within the fabric of the wall if it is so wished.

A significant advantage of using the apparatus and installation method according to the invention, is that the external network service provider can now have access to the NTP without having to schedule visits to the interior of the customer's premises. As briefly noted above, scheduling difficulties is a real problem quantifiable in monetary terms by looking at lost time, manpower and goodwill. Adoption of the invention thus helps to solve the problems associated with the initial cabling of the customer premises to the external network. Furthermore, real advantages can also be gained in connection with the ability of the external network service provider (such as British Telecommunications plc in the UK) to maintain the NTP at any time e.g. to test the connection.

Another important advantage of the invention over current apparatus and methods, is that it goes some way to future-proofing the installation. The capacity of the device allows it to accommodate relatively more and a larger variety of telecommunications plant, so that once the splice brick is installed, suitable components can be included within the splice brick (20). Its position on the exterior wall allows personnel from the external network service provider to maintain and test the NTP, and also to e.g. remove and/or add components to upgrade premises currently having a copper telephone connection, to bring optical fibre directly into the home. The description above refers throughout to this example of upgrading the premises from copper to fibre; equally copper could be upgraded to coaxial or other cables, or in a less likely scenario, to downgrade an optical or coaxial connection to a copper one.

The invention is described herein mainly in the context of an installation with cavity walls for convenience. Clearly, the invention could also be used in solid wall constructions (that is, those without cavities). Nowadays, at least in temperate climates, such walls are normally relatively thick, and if made of bricks will be at least two brick-widths thick. Consequently in such situations the splice brick would be used in place of a brick in the outer layer of the wall – an appropriate aperture being provided in the inner layer to permit access from the splice brick to the interior of the building. In certain circumstances, the invention might require suitable modification to take into account environmental factors (e.g. insulation against sound, temperature and moisture), be adapted to bridge the inward and outward faces of a wall in a solid wall installation without a cavity. For timber constructions one could still use the same splice bricks as designed for a brick-built structure, although external flanges with apertures for screws or nails could be provided to permit the "brick" to be fixed to the timber of the building.

The apparatus, methods and configurations described above and in the drawings are for ease of description only and not meant to restrict the invention to any particular embodiments. It will be apparent to the skilled person that various sequences and permutations on the apparatus and methods described are possible within the scope of this invention as disclosed; similarly the invention could be used in various similar scenarios and building types.

NETWORK TERMINATION APPARATUS

ABSTRACT

A splice brick for installation into an external wall of premises, to provide a connection between the premises and an external telecommunications network, the splice brick bring suitable to house termination points, telecommunications cables, plugs and sockets, and wherein the contents of the splice brick are accessible from the outside the premises.

Figure 3

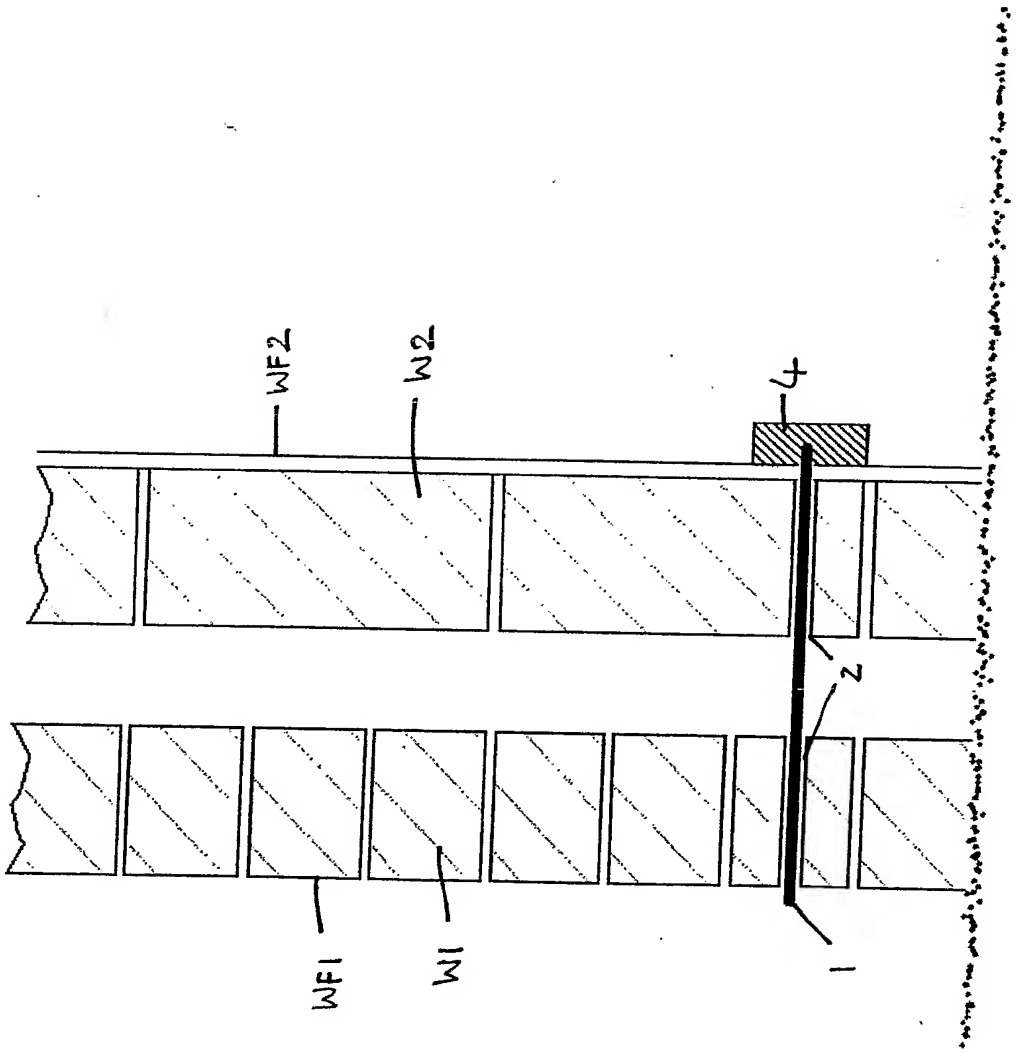
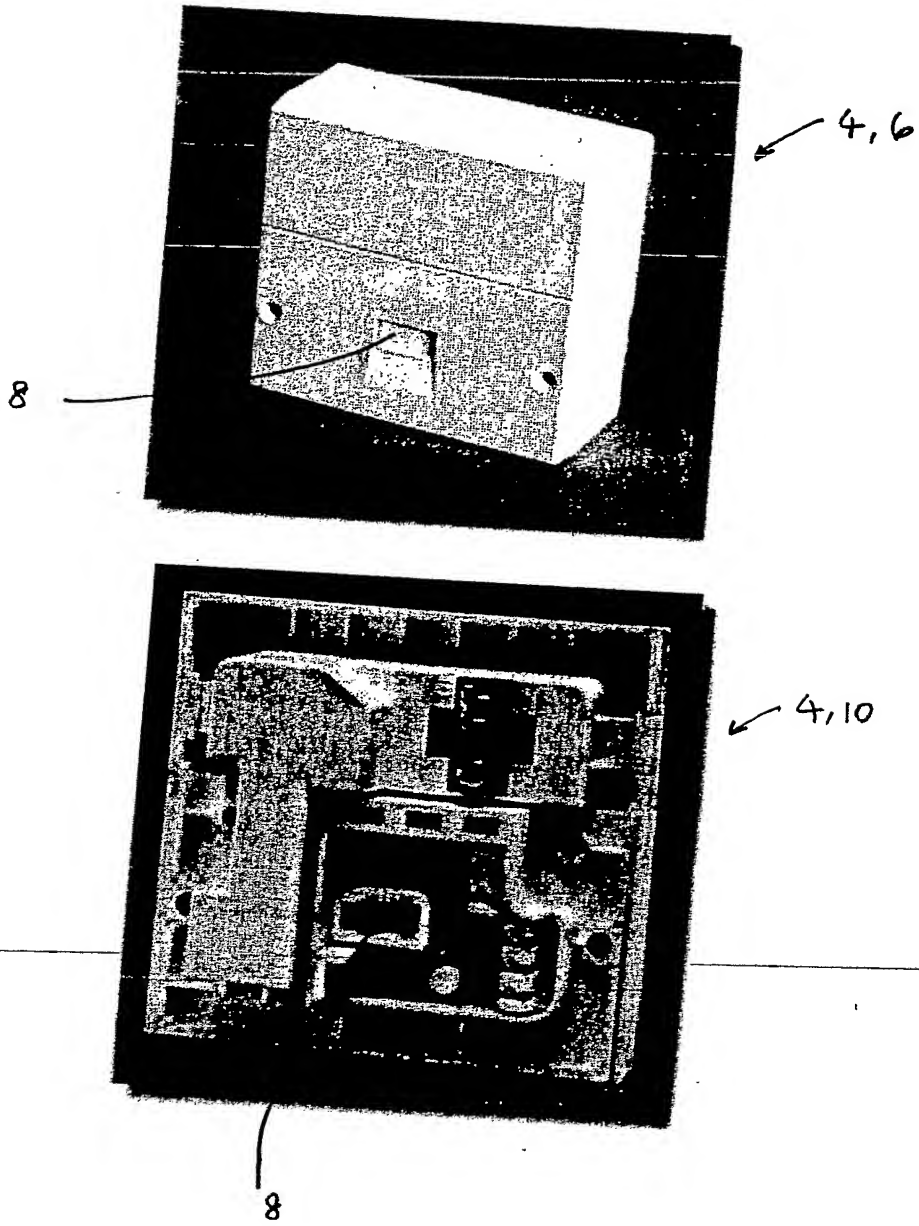


FIGURE 1 - PRIOR ART

FIGURE 2
PRIOR ART



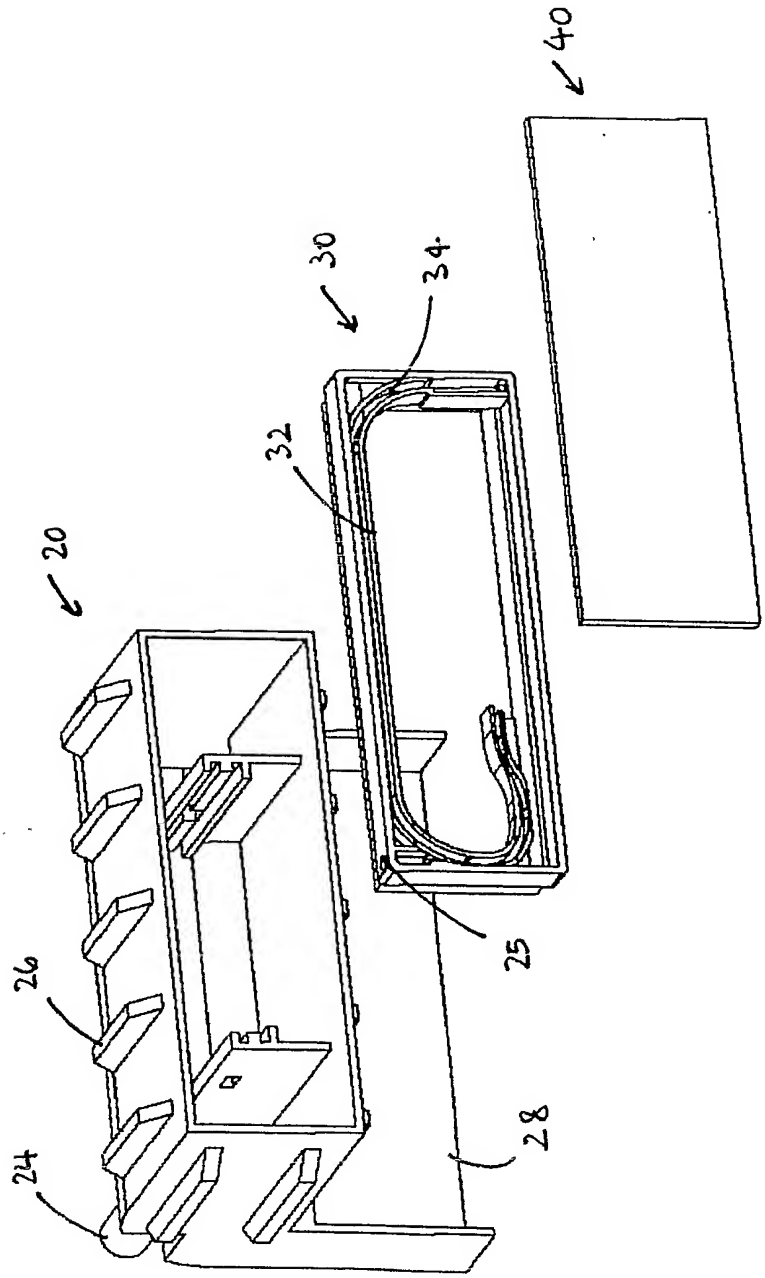


FIGURE 3

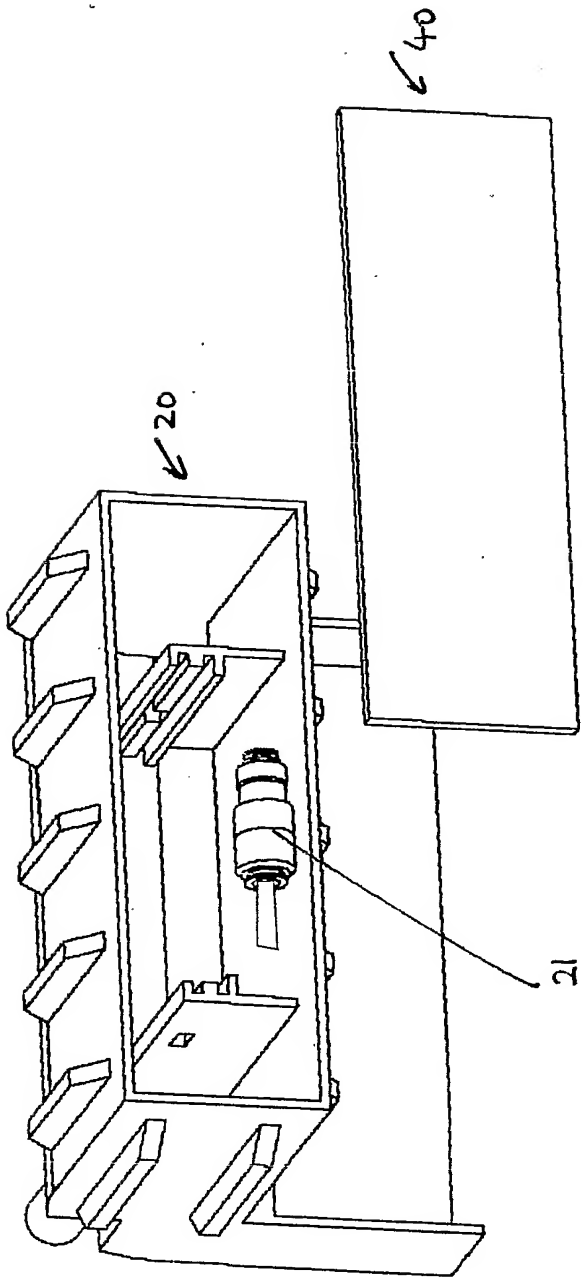


FIGURE 4

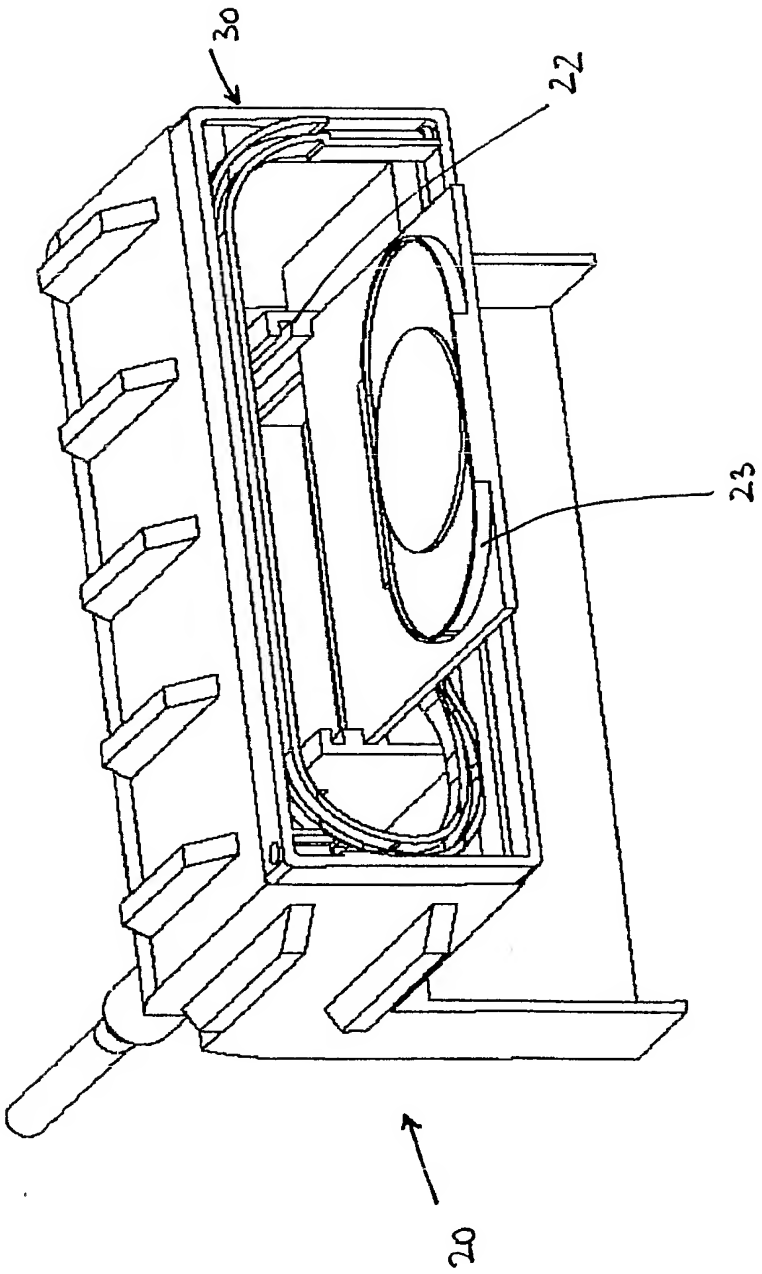


FIGURE 5A

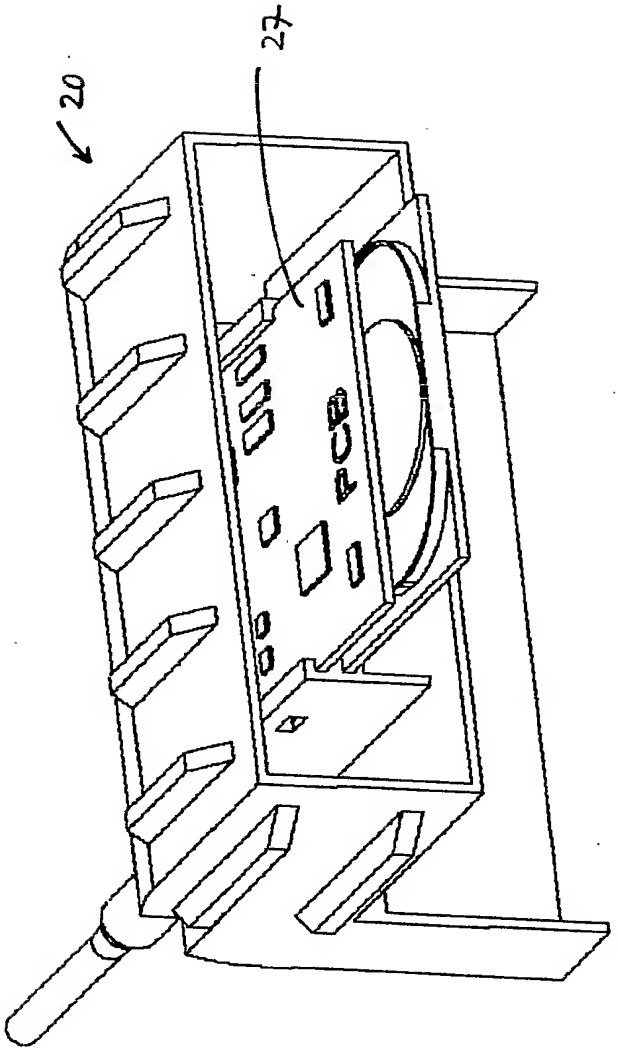


FIGURE 5B

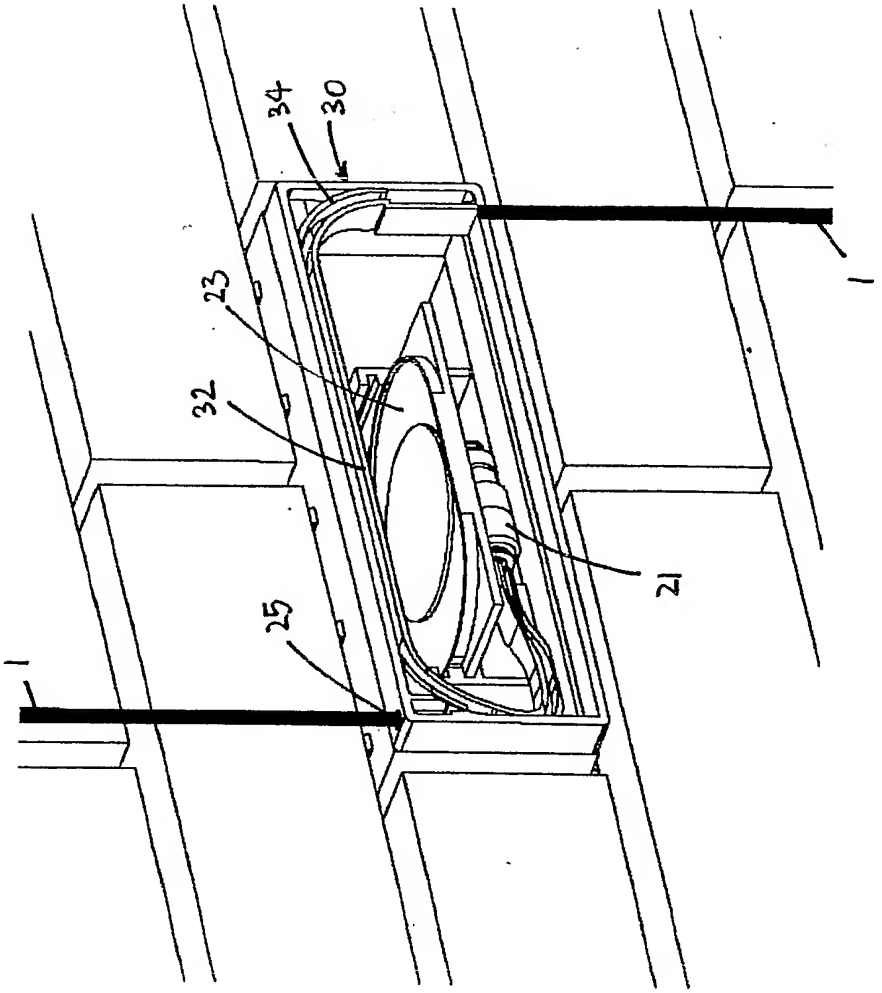


FIGURE 6

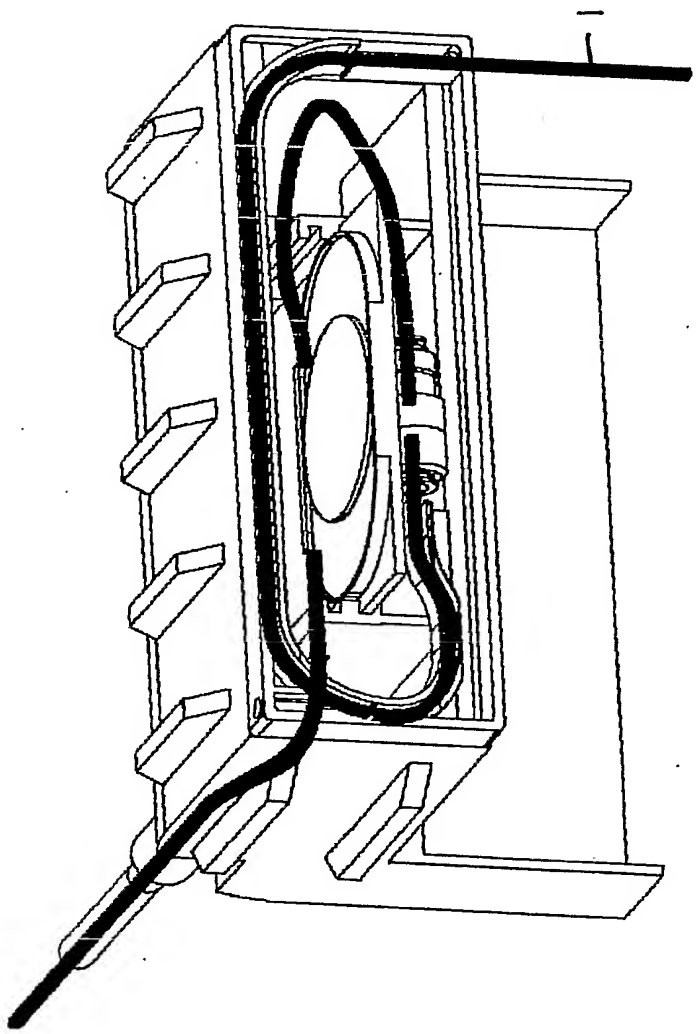


FIGURE 7A

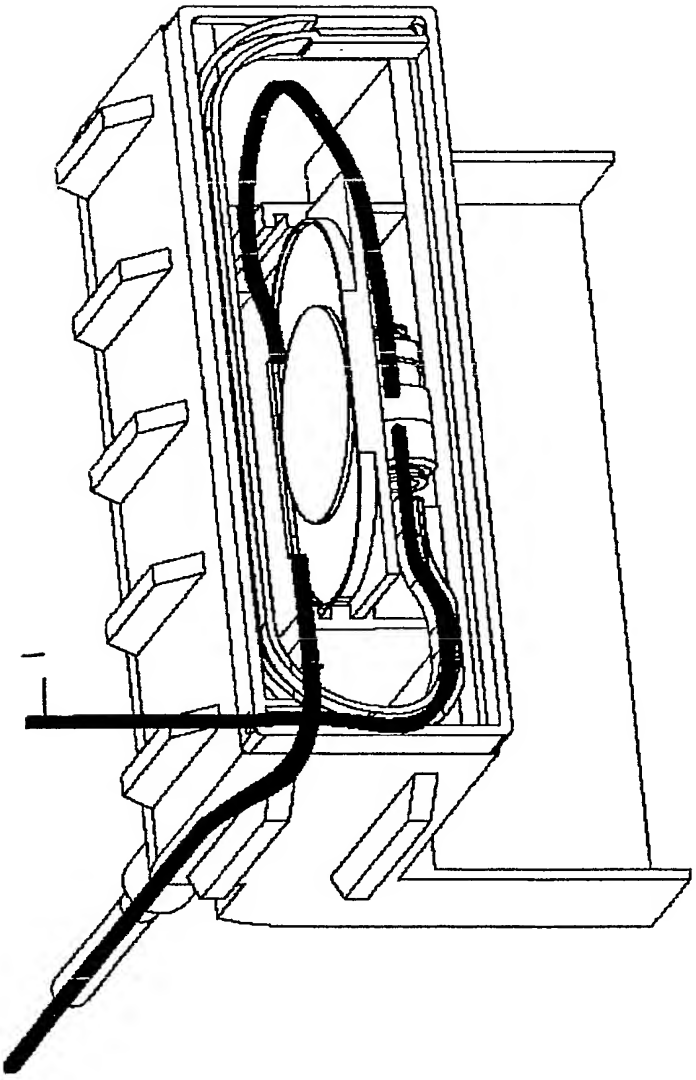


FIGURE 7B

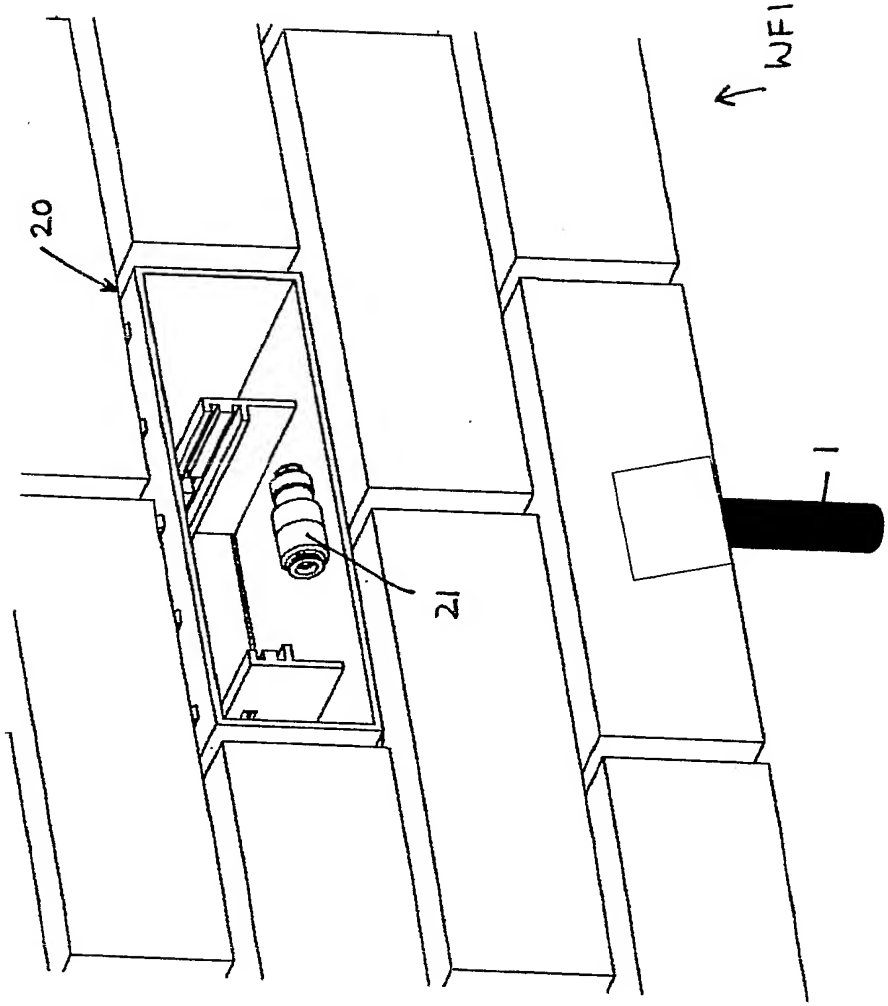


FIGURE 8

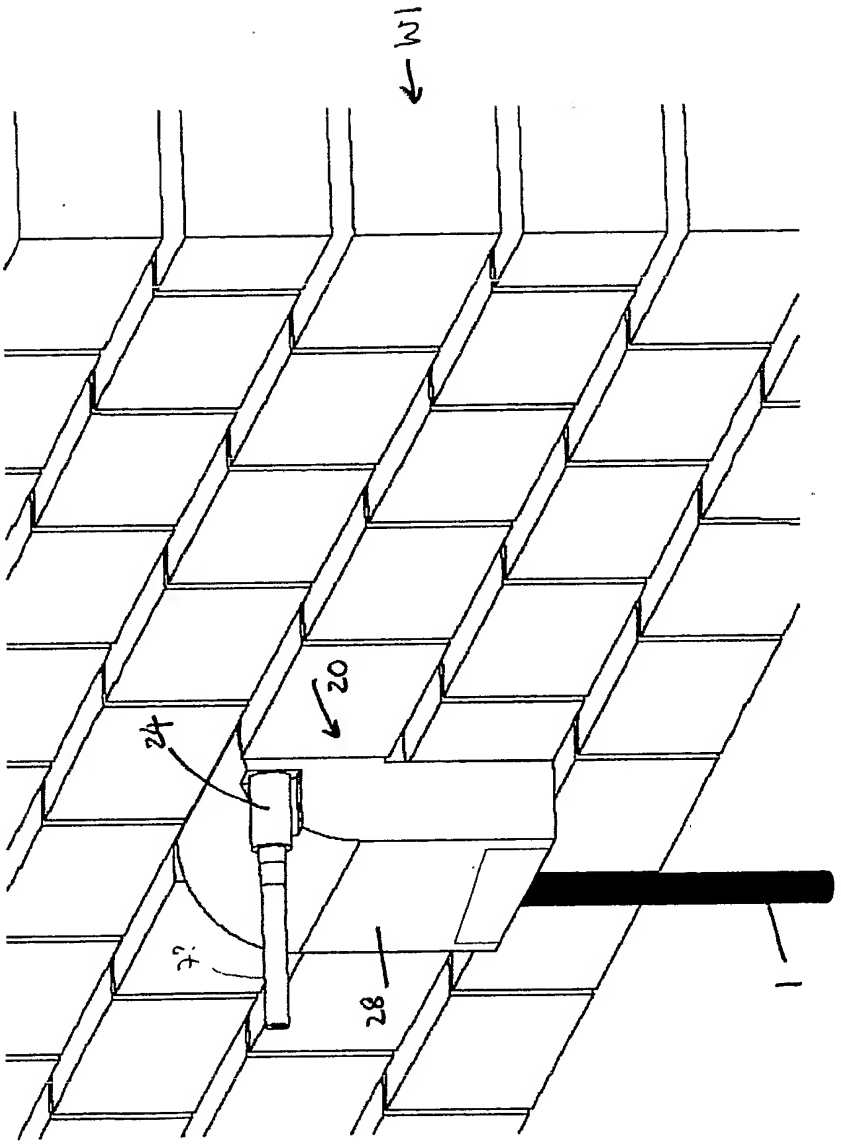


FIGURE 9

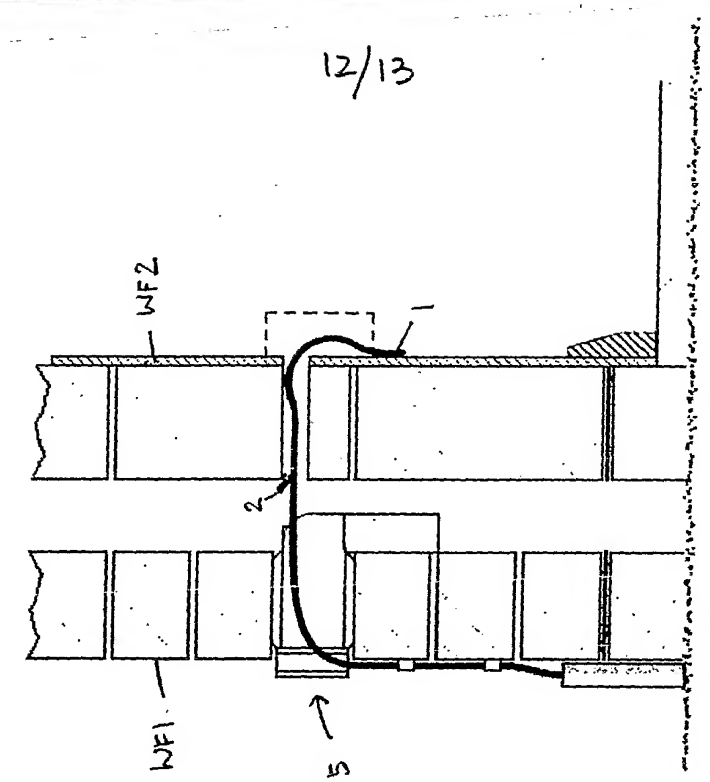


FIGURE 10B

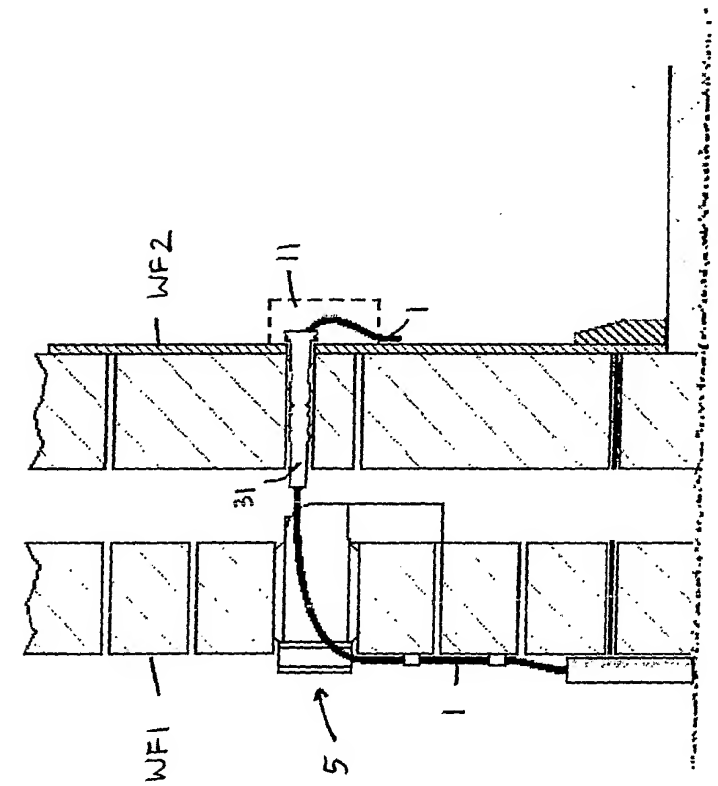


FIGURE 10A

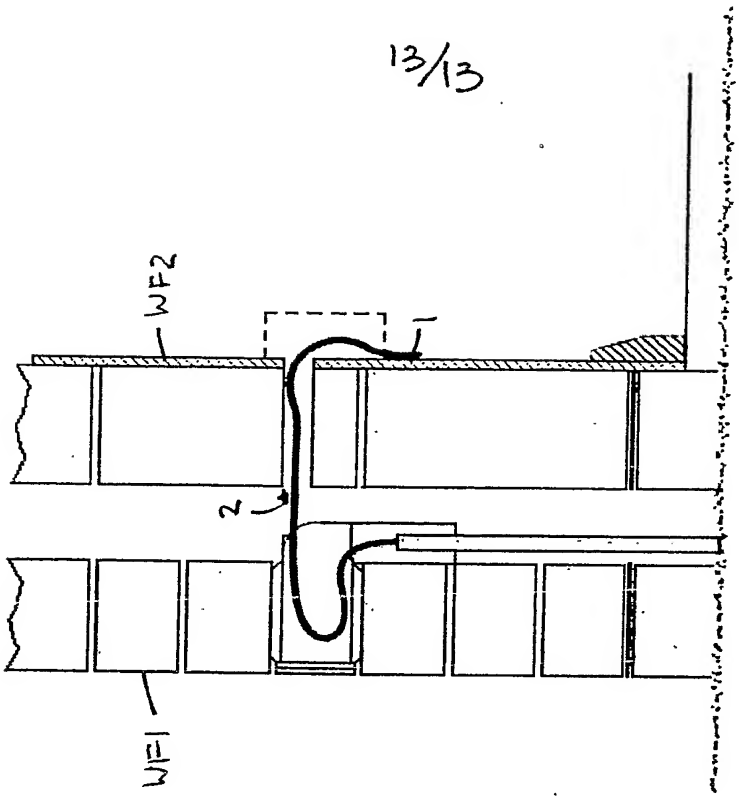


FIGURE 11B

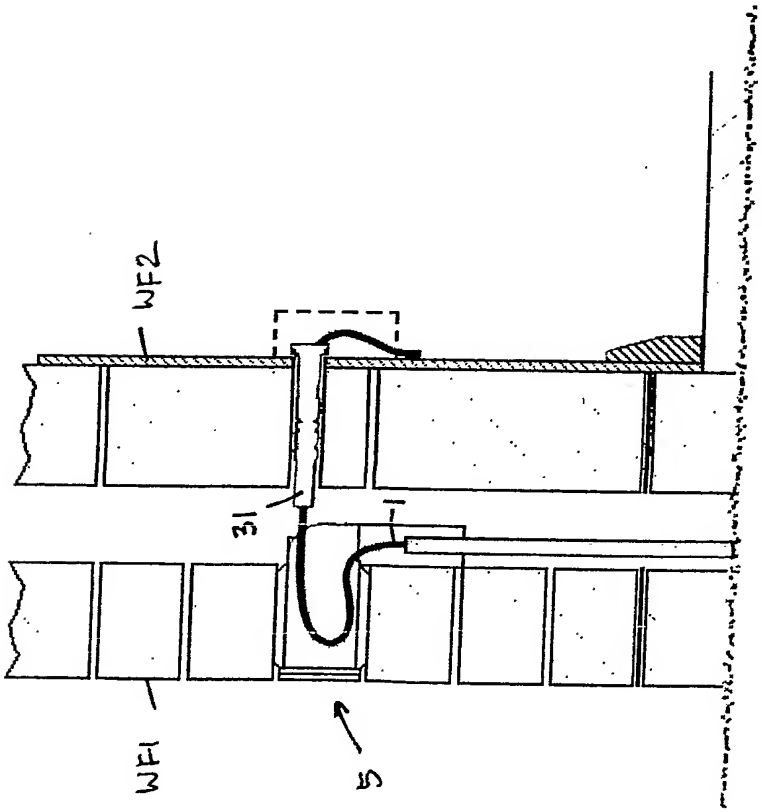


FIGURE 11A